FREQUENTLY ASKED QUESTIONS

On Saturday, September 8, we will launch the world's first ocean cleanup system from our assembly yard in Alameda. The Ocean Cleanup's System 001 is 2,000 feet long and will depart from San Francisco Bay, through the Golden Gate Bridge and on to the Pacific Ocean.

What happens next?

System 001 will be transferred to the Pacific Trials testing area, about 240-300 nautical miles offshore, for a final testing round. Here, it will be installed in its operational U-shape position for the first time. It will take around 3 days to arrive to the testing site. During this final rehearsal, the system's behavior will be extensively monitored.

How long does it take for System 001 to arrive at the Great Pacific Garbage Patch?

We expect the final rehearsal to last around two weeks. After the trials have been concluded, System 001 will be towed the remaining ~1000 nautical miles to the Great Pacific Garbage Patch (GPGP). This will be a long journey (of approx. 2 to 3 weeks), as the average tow speed is only 2-4 knots.

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What are the technical specifications of the system?

The system's main components are its floater and skirt. The floater is a 2000-foot-long (600 meter) hard-walled pipe with an impenetrable 10 ft (3 meter) skirt underneath. The system will be equipped with lanterns, radar reflectors, navigational signals, GPS, and anti-collision beacons. The AIS (Automatic Identification System) will continuously broadcast the location of the system to passing vessels and the GPS will track the location of the system to broadcast back to control rooms on shore via an Iridium satellite connection. See more details on our technology page.

Once the plastic is concentrated in the middle of the cleanup system, how do you extract it?

A vessel acting somewhat like an ocean garbage truck will remove the collected plastic approximately every six weeks. The Ocean Cleanup is planning to make use of a modified purse seine method designed to extract accumulated plastic without marine life by-catch. This extraction method is still in experimental stages and may be optimized based on testing during the first months of operation.

How much plastic do you expect to catch and when is the first plastic ashore?

During the first period, where System 001 is the only active cleanup system, we project 50 tons of plastic to be extracted per year. Ultimately, we hope to be able to reduce the plastic in the GPGP by 90% by 2040. We anticipate bringing the first plastic to shore before the end of this year.

What are your plans with the plastic you bring to shore? Can it be recycled?

Our objective is to valorize as much of the harvested material as technically and commercially possible. We aim for 'zero waste' operation, with no debris to end up in landfill. Our recycling operations will be based on partnerships with existing recycling companies who have capacity to process the material or are willing to invest in our mission. More about this process will be shared once we bring the first plastic back from the Great Pacific Garbage Patch later this year.

How much plastic is in the Great Pacific Garbage Patch?

At the time of sampling there were more than 1.8 trillion pieces of plastic in the patch that weigh an estimated 80,000 tonnes, or 80 million kilograms – the equivalent of 500 jumbo jets. These figures are much higher than previous calculations and the area is now about twice the size of Texas. For more details, see our Great Pacific Garbage Patch page.

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How much funding did you receive up until now and how much did System 001 cost?

So far we have raised nearly USD 40 million (EUR 35 million). The cost of hardware for the system amounted to about €4 million. When you add costs of assembly it adds up to €6 million. We expect a cost of 5 million per system in the future, built up from CapEx including production, assembly, maintenance, and OpEx for a period of 3 years. Once we start scaling up to a full fleet of 60 systems, we also plan on funding the continued operation (after the first initial 3 years) by the help of the proceeds of the recycled plastic.

How do you plan on funding the fleet of 60 systems?

After we have brought the first plastic to shore and we have a proven technology we can plan to start scaling up to a full fleet of 60 systems. We welcome corporates and other interested parties to sponsor their own cleanup system in the future, collecting plastic themselves. Going forward, we are looking into ways to cover part of our operational costs using proceeds from recycled plastic.

How do you ensure the fleet will not collide with each other or with vessels?

The systems will be equipped with AIS (Automatic Identification System), an anti-collision system, which allows the system to be seen by vessels and other cleanup systems. The AIS will continuously broadcast the location of the systems to passing vessels and the GPS will track the location of our systems, which is continuously broadcasted via Iridium satellite connection to our control room on shore, meaning we get a warning should they veer out of the patch. The US Coast Guard will also issue a regular notice to mariners about the presence of our system.

Which sizes of plastic can the system capture and to what depth?

System 001 is designed to catch plastic up from several millimetres in size, which means that we expect to catch about 90% of plastics in the Garbage Patch with our systems. The Ocean Cleanup has conducted several ocean expeditions studying the vertical distribution of plastic and our research shows that the plastic concentration decreases significantly at depth, with the highest concentration being at the surface. Already, at depths of just a few meters concentrations approach zero so the system has been built taking these measurements into account.

Are you also planning to reduce the sources of plastic pollution?

Plastic waste reduction and prevention is the other half of the equation. The Ocean Cleanup has advocated a two-pronged approach since the beginning. We need to stop plastic waste from being dumped into the ocean, but that does not solve the legacy problem of all the plastic that exists in the ocean today. Right now, our focus is on the removal of floating plastic from the high

concentration zones (starting with the Great Pacific Garbage Patch), as there is hardly any other initiative working on a solution for it. It is in international waters, far away from country boarders, and a result of pollution from many different countries, meaning it is no one's responsibility at the same time as it is everyone's problem. We believe it needs to be cleaned up now, to prevent it from doing more harm and before it breaks down into microplastics.

What is your plan going forward, from System 001?

In many ways System 001 is a beta system, so we will incorporate changes to optimise the design before we scale up and increase production. We plan to reach a full fleet of around 60 systems in the GPGP by 2020, after which we will turn our attention to the other four gyres.